BAZHANOVA, N.V.; MASLOVA, T.G.; POPOVA, I.A.; POPOVA, O.F.; SAPOZHNIKOV, D.I.; DYDEL'MAN, Z.M. Prinimali uchastiye: CHERNOMORSKIY, S.M.; MENITSKAYA, I.M.; SAPOZHNIKOV, D.I., otv. red.

[Plastid pigments of green plants and the methods of their study] Pigmenty plastid zelenykh rastenii i metodika ikh issledovaniia. Moskva, Izd-vo "Nauka," 1964. 119 p. (MIRA 17:7)

1. Akademiya nauk SSSR. Botanicheskiy institut. 2. Laboratoriya fotosinteza Botanicheskogo instituta im. V.L. Komarova AN SSSR (for all except Sapozhnikov).

EYDEL'MAN, Z.M.; SAPOZHNIKOV, D.I.; BAZHANOVA, N.V.; MASLOVA, T.G.; POPOVA, O.F.; SHIRYAYEVA, G.A.

Relation between phosphorylation reactions and the transformation of xanthophylls in the course of photosynthesis. Trudy Bot. inst. Ser. 4 no.15:224-233 '62. (MIRA 15:7)
(Xanthophyll) (Photosynthesis) (Phosphorylation)

SAPOZHNIKOV, D.I.; EYDEL'MAN, Z.M.; BAZHANOVA, N.V.; MASLOVA, T.G.; POPOVA, O.F.

Concerning the participation of carotenoids in the process of photosynthesis. Trudy Bot. inst. Ser. 4 no.15:43-52 '62. (MIRA 15:7)

(Photosynthesis) (Carotenoids)

SAPOZHNIKOV, D.I.; MASLOVA, T.G.; BAZHANOVA, N.V.; POPOVA, O.F.; CHERNOMORSKIY, S.A.; SHIRYAYEVA, G.A.

State of pigments in leaves. Trudy Bot. inst. Ser. 4 no.15: 53-67 '62. (MIRA 15:7)
(Chlorophyll) (Carotenoids)

EYDEL'MAN, E.M.; POPOVA, O.F.

Methods for studying the photosynthetic phosphorylation. Trudy Otd. fiziol. i biofiz. rast. AN Tadzh. SSR 2:194-231 '62. (MIRA 16:4)

(Photosynthesis) (Phosphorylation)

EYDEL'MAN, Z.M.; SAPOZHNIKOV, D.I.; BAZHANOVA, N.V.; POPOVA, O.F.

Comparative study of the effect of photosynthetic poisons on photochemical conversion of some xanthophylls. Fiziol. rast 7 no.2:129-132 '60. (MIRA 14:5)

1. Komarov Botanical Institute, U.S.S.R Academy of Sciences, Leningrad.

(Xanthophylls)
(Photosynthesis)
(Phosphorylation)

EYDEL'MAN, Z.M.; POPOVA, O.F.

Characteristics of the biosynthesis of plastid phytochromes in hybird and inbred corn forms[w.s.i.E.]. Trudy Bot. inst. Ser.4 no.14:100-111 '60. (MIRA 14:3)
(Corn breeding) (Chromatophores)

SAPOZHNIKOV, D.I.; ALKHAZOV, D.G.; EYDEL'MAN, Z.M.; BAZHANOVA, N.V.; LEMBERG, I.Kh.; MASLOVA, T.G.; GIRSHIN, A.B.; POPOVA, I.A.; SAAKOV, V.S.; POPOVA, O.F.; SHIRYAYEVA, G.A.

Incorporation of O^{18} from heavy oxygen water into violaxanthin due to the action of light on plants. Bot. zhur. 46 no. 5:673-676 My '61. (MIRA 14:7)

1. Botanicheskiy institut imeni V.L. Komarova AN SSSR, Leningrad.
(Oxygen—Isotopes) (Violaxanthin)

SAPOZHNIKOV, D.I.; ALKHAZOV, D.G.; EYDEL'MAN, Z.M.; BAZHANOVA, N.V.; LEMBERG, I.Kh.; MASLOVA, T.G.; GIRSHIN, A.B.; POPOVA, I.A.; SAAKOV, V.S.; POPOVA, O.F.; SHIRYAYEVA, G.A.

Participation of xanthophylls in oxygen transport in the process of photosynthesis. Dokl. AN SSSR 154 no.4:974-977 F '64. (MIRA 17:3)

1. Botanicheskiy institut im. V.L. Komarova AN SSSR. Predstavleno akademikom A.L. Kursanovym.

SAPOZHNIKOV, D.I.; MASLOVA, T.G.; BAZHANOVA, N.V.; POPOVA, O.F.

Kinetics of the inclusion of O^{18} from heavy oxygen water into the violaxanthin molecule. Biofizika 10 no.2:349-351 '65. (MIRA 18:7)

1. Botanicheskiy institut imeni Komarova AN SSSR, Leningrad.

17(3)

AUTHORS: Sapozhnikov, D. I., Eydel'man, Z. M., Bazhanova, N. V., Popova, O. P. SOV/20-127-5-54/58

TITLE: The Inhibitory Effect of Hydroxylamine on the Light Reaction in the Course of Xanthophyll Transformation

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 5, pp 1128-1131 (USSR)

ABSTRACT: In the most recent papers the participation of carotenoids in the transfer of oxygen in the course of the photosynthesis is assumed (Refs 1-5). The content of violaxanthine was reduced at illumination whereas that of lutein increased. This difference was reduced in the dark. Sapozhnikov Krasovskaya, and Mayevskaya (Ref 3) assumed an enzymatic nature of this mutual transformation of the two xanthophylls mentioned and the possible participation of this ferment system in the oxygen transfer. Furthermore it was proved that the violaxanthine formation was inhibited under anaerobic conditions (reaction in the dark) whereas the light reaction was not suppressed by the anaerobiosis. Since oxygen is transferred in the light reaction of the xanthophyll transformation it was important to investigate the inhibition conditions of this

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reaction. Hydroxylamine is a photosynthetic poison which acts as a specific inhibitor of the oxygen separation during the photosynthesis (Refs 6-9). Water weed (Elodea canadensis), i. e. the youngest shoot tips, 2 - 3 cm long, served as investigation object. After having been dried they were placed in boiling dishes with poison solutions of certain concentration. Figure 1 shows the results of a typical experimental series. A part of the boiling dishes with experimental- and control plants was exposed to the light of a 1000 watt lamp, the other one left in the dark. Various expositions (Fig 2) (2-120 minutes) in the poison solution and various poison concentrations (Fig 4) ($1 \cdot 10^{-4}$ - $6 \cdot 10^{-2}$ mol)as well as the illumination intensity (Fig 3) were tested. The following conclusions are drawn from the results: (1) The light reaction of the xanthophyll transformation may be completely inhibited by certain concentrations ($4 \cdot 10^{-2}$ mol). (2) The concentration of the inhibitor necessary for the inhibition of the light reaction increases with rising light intensity. (3) The assumption concerning the enzymatic character of the light

The Inhibitory Effect of Hydroxylamine on the Light Reaction in the Course of Xanthophyll Transformation SOV/20-127-5-54/58

reaction of the mutual transformation of xanthophylls as well as concerning a close connection between this system and the oxygen transfer in the course of the photosynthesis is confirmed. There are 4 figures and 15 references, 6 of which are Soviet.

PRESENTED: April 23, 1959, by A. I. Oparin, Academician

SUBMITTED: March 16, 1959

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SAPOZHNIKOV, D.I.; EYDEL'MAN, Z.M.; BAZHANOVA, N.V.; MASLOVA, T.G.; POPOVA, O.F.; SHIRYAYEVA, G.A.

Characteristics of the light reaction of xanthophyll conversion under conditions of anaerobiosis. Bot.zhur. 49 no.10:1463-1465 O '64.
(MIRA 18:1)

1. Botanicheskiy institut imeni V.L.Komarova AN SSSR, Leningrad.

23(4) 23 (5) SOV/77-4-2-15/18

AUTHOR: Lyalikov, K.S.

TITLE: Successes of Soviet Electrophotography (Uspekhi sovetskoy elektrofotografii) A Scientific and Technical Conference on Questions of Electrography (Nauchno-tekhnicheskaya konferentsiya po voprosam elektrografii)

PERIODICAL: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, 1959, Vol 4, Nr 2, pp 149-152 (USSR)

ABSTRACT: This is an account of a scientific and technical conference on electrography, the first to be held in the Soviet Union and evidently in the world. It was organized in Vil'nyus on December 16-19, 1958 by the Sovet narodnogo khozyaystva Litovskoy SSR (Council for National Economy of the Lithuanian SSR), the Gosudarstvennyy nauchno-tekhnicheskiy komitet Soveta ministrov Litovskoy SSR (State Scientific and Technical Committee of the Council of Ministers of the Lithuanian SSR) and the Nauchno-issledovatel'skiy institut elektrografii (Scientific Research Institute of Electrography). The conference, attended by over 300 scientific workers, was opened by the Deputy Chairman of the Council for National Economy of the Lithuanian SSR P.A. Kul'vets, after which the director of the Institute for Electrography, I.I.Zhilevich, reviewed the state and prospects for development of electrography in the USSR. He stated that research in this field should be carried out along the following lines: a) a search for new photo-active materials with high dark resitance; b) physical research into the internal photoeffect; c) development of photosemiconductor layers; d) development of the theory of the electrophotographic process. K.S. Lyalikov (speaking also for O.G. Popova) gave a report in which he suggested determining the light sensitivity of electrophotographic layers in GOST units. N.Z. Plavina (speaking also for I.I.Zhilevich, L.I.Nyun'ko, A.M.Markevich, E.I. Kalinauskens and O.K. Suveyzdis) reported on some research on the sensitization of a semiconductor in electrophotographic layers. V.M. Fridkin gave a report on highly sensitive electrophotographic layers and an electrophotocopying device, and reviewed the formation process of the latent electrophotographic image on the basis of the zonal theory. He also described the design of an electrosensitometer for determining sensitivity by the relaxation period of a charge on the surface of the layer, and the circuit of an electrophotographic copying device. Anfilov finished describing the latter and then spoke on the mechanics and kinetics of the development of the latent electrophotographic image in liquid developers.

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Successes of Soviet Electrophotography; A Scientific and Technical Conference on Questions of Electrography

K.M. Vinogradov described some of the features of the cascade and liquid methods of electrophotographic development. Yu.Ye. Karpeshko devoted his report to the criterion of light sensitivity of the elctrophotographic process. After the reports, a discussion took place on methods of determining the light sensitivity of electrophotographic layers. A.N. Chernyshev spoke on the prospects of developing polygraphic processes using electric and magnetic forces. O.V. Gromov (speaking also for I.I. Zhilevich, A.A. Sukhiy, V.A. Gordeyeva, A.S. Pauzha and Yu. I. Kevalaytis) reported on the development of elctrophotographic reproducing equipment. A.S. Pauzha (speaking also for I.I. Zhilevich, A.S. Borisovich, N.M. Gal'vidiks and M.I.Rautkauskas) reported on the use of electrographic methods in recording oscillographs and other recording instruments.
V.P. Yurchenko (speaking also for L.N.Falin) spoke on the possibility of electrophotographically recording images from electron-beam tubes. L.S. Korol' (speaking also for N.N. Markevich, T.I. Kozlovskaya, B.I. Kalinauskene, M.K. Naynens, I.I. Zhilevich and E.A. Montrimas) gave a detailed description of laboratory and machine methods of producing photosemiconductor papers (zinc oxide was used). A.A. Sukhiy (speaking also for I.I. Zhilevich, O.V. Gromov, V.A. Gordeyev , K.V. Fedotov and T.N. Ger) described a laboratory and industrial machine for producing photosemiconductor papers. T.A. Shishkina (speaking also for Ya.A. Okunin) reported on a method of examining electrophotographic materials using an a/c bridge. S.I. Khotyanovich (speaking also for A.I. Sikens and I.S. Shileykens) spoke on developing materials for electrophotography and ferromagnitography, including developers giving a "reverse" image. B.I. Tikhonov reviewed methods of measuring the electrostatic potentials of electrophotographic layers, stressing that the oscillating electrode should not be placed above a layer with varying potential as this causes self-discharge. L.V. Krukovskiy (speaking also for R.G.Gorevoy, A.V.Osipov and Ye. S. Kheyfets) spoke on the practice of producing velveteen papers in an electrostatic field, and showed samples produced by the Grigishkskaya paper factory. Ye.L. Nemirovskiy then gave a historical review of the development of electrographic methods in which he paid tribute to the work of the Scientific Research Institute of Electrography in Vil'nyus and the Institut poligraficheskogo mashinostroyeniya (Moskva)-(Polygraphic Machine-Building Institute (Moscow)). Debates were then held

on methods of measuring the potential of charged electrophotographic layers; the vibration pick-up most-used was shown in B.I. Tikhonov's report to be not always accurate. S.G.Granishin stated that the bad influence of the oscillating electrode can be eliminated if the electrode probe above its surface is fixed and the pick-up is connected to it by a shielded cable. In the debate on Ye.L. Nemirovskiy's report it was stated that the research of Academicians A.N. Terenin and Ye.K. Putseyko should be considered as the basis of all work on electrophotographic papers with ZnO, as they were the first to show the possibility of optical sensitisation of the internal photoeffect in ZnO. N.M.Gol'vidis then gave a report on the depositing of charges by a corona discharge. A.I. Kaminskas and A.P. Yapulis reviewed some of the results of the use of electrographic methods in radiography. L.I. Nyun'ko (speaking also for I.I. Zhilevich, I.Z. Plavin, Yu.K. Vishchakas and Yu.A.Zibuts) reported on relaxation processes in semiconductor layers, using a vibration electrometer. Yu.K.Vishakas gave a report on research on some physical properties of the polycrystalline layers of selenious cadmium. M.P. Mikalkyavichyus spoke on some of the photoelectric properties of Sb_2S_3 and Sb_2Se_3: the absorption maximum of the latter is about 900 mμ. S.M. Neyman reported on methods of obtaining selenium light-sensitive layers, including sublimation and thermal treatment; it was also found that the sensitivity of the layers increased after storage for 1.5 to 2 months at room temperature. P.M. Podvigalkin (speaking also for S.G.Grenishin) spoke on research into the electrical properties of electrophotographic layers of amorphous selenium and powdered zinc oxide. N.K. Shiktorov (speaking also for A.S. Tauraytis) discussed the production of selenium layers and some of their properties. Finally the following reports on ferromagnetography were delivered; 1) B.Ya. Karnacheyev, V.M.Zhogina, "Electrodeposition of Magneto-hard Alloys with Given Magnetic Characteristics" 2) M.P.Arutyunov, "Visualization of Magnetic Oscillograms by the Ferrographic Method" 3) V.T.Patrunov, "Ferrographic Recording of Facsimile Images" 4) I.I.Zhilevich, I.I. Gikis, B. Ye. Buchek, I.I. Kaynise, A.K.Kizhis, "Mock Experiments in Non-Pressure Ferromagnetic Printing". There was also an exhibition showing the work of the Electrographic Institute. The most important conclusion of the conference was that a solid approach had been made to the possibility of wide technical use of the methods of electrography. It was considered that although work in this field actually started only in 1955-56 it has covered as much ground as the USA in 10 years. While admitting that it was easier to reproduce results already achieved than to be the first to arrive at them, the conference observed that the Americans took good care that no important information appeared in the literature available.

Card 10/10

POPOVA, O. I.

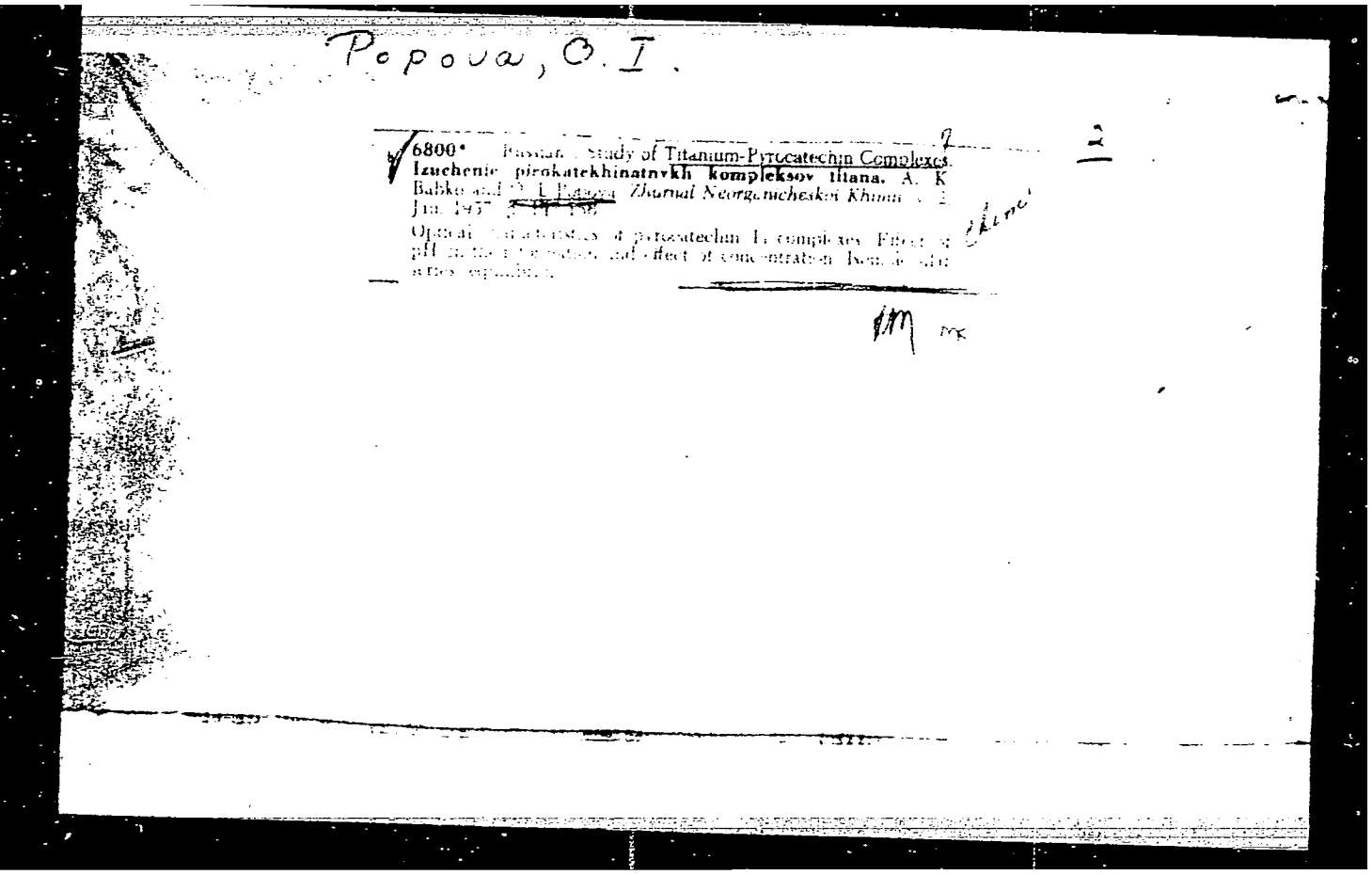
POPOVA, O. I.: "A study of the colored complexes of titanium and their use in colorimetric analysis." Min Higher Education USSR. Kiev State U imeni T. G. Shevchenko. Kiev 1956
(Dissertation for the degree of Candidate in Chemical Science)

SO: Knizhnaya Letopis', No36, 1956, Moscow.

BABKO, A.K.; POPOVA, O.I.

Study of titanium complex compounds with chromotropic acid and 1,8-dioxynaphthalene. Zhur. neorg. khim. 2 no.1:138-146 Ja '57. (MLRA 10:4)

1. Kiyevskiy gosudarstvennyy universitet.
(Titanium compounds) (Complex compounds) (Naphthalenedisulfonic acid)



Popova, O. I.

6800* Russian Study of Titanium-Pyrocatechin Complexes. **Izuchenie pirokatekhinatnykh kompleksov titana.** A. K. Babko and O. I. Popova. *Zhurnal Neorganicheskoi Khimii*, Jun 1957

Optical characteristics of pyrocatechin Ti complexes. Effect of pH on the formation and effect of concentration [illegible]

POPOVA, O. I.

USSR/Cultivated Plants. Fodder Plants. M

Abs Jour : Ref Zhur-Biol., No 15, 1958, 68240

Author : Popova, O. I.
Inst : Omsk Agricultural Institute.
Title : A Comparative Study of Annual Grasses.

Orig Pub : Tr. Omskogo s.-kh. in-ta, 1957, 22, No 1, 149-159

Abstract : In 1953-1954, experiments at the Omsk Agricultural Institute have shown that the highest hay yields were given by broomcorn (66.8 centners/hectare), grain sorgo (55.7 centners/hectare), Buchan chumiza (64.1 centners/hectare), millet (29.1 centners/hectare), and mohar (28.2 centners/hectare). Sudan grass, mohar, and millet gave lower hay yields in 1954, and oats in

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73-3-16/24

AUTHOR: Babko, A. K., and Popova, O. I.

TITLE: Determination of Titanium in Steels by Extracting its Complex with 1,8-α-Dihydroxynaphthalene. (Opredeleniye Titana v Stalyakh Ekstragirovaniyem Yego Kompleksa s 1,8-Dioksinaftalinom)

PERIODICAL: Ukrainskiy Khimicheskiy Zhurnal, 1957, Vol. 23, No.3, pp. 376-380 (USSR).

ABSTRACT: 1,8-dihydroxynaphthalene was shown to form complexes with titanium which has analogous properties as titanium-chromotropic complexes but can be extracted by means of organic solvents (Ref. 6). 1,8-dihydroxynaphthalene forms 2 compounds with titanium: a red complex at pH 1 - 4 (λ_{max} = 490 mμ) and a yellow complex at pH ≥ 6 (λ = 430mμ). These complexes are insoluble in water, form colloidal solutions which coagulate after 2 days. Chemico-physical analyses showed that the relation titanium: dihydroxy-naphthalene = 1:2 in the red complex and 1:3 in the yellow complex, the first complex being formed in a more acid medium, the second when the pH ≥ 6. The dependence of the formation of the complexes on the pH, the effect of some anions as well as the properties of the complexes were

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Determination of Titanium in Steels by Extracting its Complex with 1,8-α-Dihydroxynaphthalene.

investigated. The complex can be extracted with butanol, ethyl ether, isobutanol and benzene at pH 2 - 8. One extraction only is required. Figure 1 shows the effect of excess 1,8-dihydroxynaphthalene (H_2R) during the extraction of the complex at pH 4 and pH 6. The intensity of coloration of the extract of the complex is proportional to the titanium content in the solution (Fig. 2). Measurements were carried out on a photometer φM at an effective wavelength 465 mμ.(pH = 4). Co^{2+}, Ni^{2+} and Cu^{2+}- ions do not impede the extraction of the complex. Fe(III) forms a green precipitate with 1,8-dihydroxynaphthalene, but when converted into divalent Fe it will not react with the diol. Ascorbic acid, thiosulphate, Na-sulphite, hydroxylamine and hydrazine sulphate were used as reducing agents. Figures 3 and 4 give the light absorption curves of titanium-diol complexes in aqueous solution at pH 2 - 7 and in butanol at the same pH. Measurements were carried out on a spectrophtometer Cφ - 4. Optimum conditions for the red complex are at λ~540 mμ and for the yellow complex at λ~430 mμ. A method for the determination of titanium in

 steels by extraction without separating the chrome isgiven.

5(2)

AUTHOR: Popova, O. I.

SOV/32-25-2-11/78

TITLE: The Determination of Small Ti-Quantities in Tin Alloys (Opredeleniye malykh kolichestv titana v olovyannykh splavakh)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 2, p 148 (USSR)

ABSTRACT: It has been observed that in the determination of Ti in tin alloys by chromotropic acid (I) in concentrated sulfuric acid (Ref 1) on certain conditions tin does not react with (I). The Ti-determination is not disturbed by the presence of niobium and tantalum. A portion of 0.5 to 1.0 g is heated and dissolved in concentrated sulfuric acid, a 1 % freshly prepared solution of (I) is added to the solution and filled up with concentrated sulfuric acid to a certain volume. The color intensity obtained is compared with a scale of standard solutions. A table gives the results of the analyses of artificial mixtures containing 1 g of zinc each. In the analysis of an alloy by the method described an average of 0.00175 % Ti was found, while the result obtained by the addition method was 0.0017 %. There are 1 table and 2 references.

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The Determination of Small Ti-Quantities in Tin Alloys SOV/32-25-2-11/78

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov Akademii nauk USSR (Institute of Powder Metallokeramics and Special Alloys of the Academy of Sciences, UkrSSR)

Card 2/2

POPOVA, O.I., KABANNIK, G.T.

Acid resistance and methods of analysis of titanium, zirconium, niobium and tantalum nitrides. Zhur. neorg. khim. 5 no.4:930-934 Ap '60. (MIRA 13:7)

1. Institut metallokeramiki i spetsial'nykh splavov AN USSR.
(Titanium nitride) (Zirconium nitride)
(Niobium nitride) (Tantalum nitride)

S/700/61/000/006/007/018
D217/D304

AUTHORS: Popova, O. I. and Kabannik, G. T.

TITLE: Chemical properties and analysis of some nitrides

SOURCE: Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov. Seminar po zharostoykim materialam. Kiyev, 1960. Trudy no. 6: Khimicheskiye svoystva i metody analiza tugoplavkikh soyedineniy. Kiyev, Izd-vo AS UkrSSR, 1961, 64-68

TEXT: A few chemical properties and methods of analyzing the following nitrides are discussed: BN, Si_3N_4, TiN, ZrN, NbN, TaN, Cr_2N, CrN, VN, V_2N, AlN, and MgN. These nitrides, except AlN and MgN, are resistant to various chemical reagents. All nitrides decompose on fusion with alkalis and Na_2O_2. MgN and AlN are less stable. MgN decomposes in air (it must be kept in ampoules) and is easily dissolved in acids; AlN dissolves in dilute alkalis. V_2N and Cr_2N dis-

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solve in some acids, whereas VN and CrN dissolve only in nitric and perchloric acid, respectively. The solubility of nitrides of Ti, Zr, Nb, Ta and Cr in various acids, acid mixtures and alkaline solutions was studied, and it was established that TaN and CrN are the most, and ZrN and Cr_2N the least, resistant to the action of various solvents. The results of this study of the solubility of the nitrides were applied to the decomposition of the specimens for analysis. Methods for analyzing some of the nitrides are given. There are 4 tables and 14 references: 7 Soviet-bloc and 7 non-Soviet-bloc.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Powder Metallurgy and Special Alloys AS UkrSSR)

35054
S/700/61/000/006/009/018
D267/D304

18.1200

AUTHORS: Samsonov, G. V., Vereykina, L. L. and Popova, O. I.

TITLE: Investigating chemical stability and methods of chemical analysis of Ti-P and Cr-P alloys

SOURCE: Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nakh splavov. Seminar po zharostoykim materialam. Kiyev, 1960. Trudy no. 6: Khimicheskiye svoystva i metody analiza tugoplavkikh soyedineniy. Kiyev, Izdvo AS UkrSSR, 1961, 75-79

X

TEXT: The monophosphides (TiP and CrP) were prepared by passing PH_3 over heated metal powder under O-free argon. The phosphine was obtained by the acid decomposition of AlP. To obtain TiP it is recommended carrying out two 6-hour phosphidizations at 1000°C, and for obtaining CrP -- a single 7-hour phosphidization at 850°C. The reactions proceed faster when metal hydrides are substituted for the metals. After 10 - 12 hours' boiling, $TiP_{0.96}$ was found to be

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Investigating chemical stability ... S/700/61/000/006/009/018
D267/D304

mained undissolved in the presence of strong oxidants. Therefore, when analyzing CrP, the sample is dissolved by heating in HNO_3 (conc.) + H_2SO_4 (conc.) or H_2SO_4 (conc.) + $NH_4S_2O_8$, after which the excess of oxidant is removed and the total Cr content is determined volumetrically. Combined P is determined gravimetrically by precipitating with magnesia mixture. Free Cr in the phosphide is determined by making use of the fact that H_2SO_4 (1:4) dissolves free Cr, but does not dissolve CrP. The volumetric method is then used for determining Cr in the solution. There are 4 tables and 13 references: 4 Soviet-bloc and 9 non-Soviet-bloc. The reference to the English-language publication reads as follows: I. Haughton, Iron Steel Inst. (London), 115, 417 (1927).

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Powder Metallurgy and Special Alloys AS UkrSSR)

Card 3/3

POPOVA, O.I.; KORNILOVA, V.I.

Analysis of high-melting alloys containing zirconium (titanium) and tungsten. Zhur.anal.khim. 16 no.5:651-652 S-O '61. (MIRA 14:9)

1. Institute of Metalloceramics and Special Alloys, Academy of Sciences, Ukrainian S.S.R., Kiyev.
(Zirconium-tungsten alloys)

POPOV., O.I.

[illegible] Uhr. [illegible] [illegible]. 1[illegible].
([illegible])

1. [illegible] metallohimi[illegible] [illegible]
(Chromite [illegible])

ACCESSION NR: AP4043462 S/0075/64/019/008/0980/0984

AUTHORS: Nazarchuk, T.N.; Popova, O.I.; Kugay, L.N.; Dzerzhanovskaya, Ye.V.; Kabannik, G.T.; Boremskaya, S.F.; Chugunnaya, N.K.

TITLE: Analysis of rare earth alloys with certain metals and oxides

SOURCE: Zhurnal analiticheskoy khimii, v. 19, no. 8, 1964, 980-984

TOPIC TAGS: complexometric titration, rare earth analysis, lanthanum oxide, magnesium oxide, scandium oxide, yttrium oxide, chromium oxide, nickel oxide, aluminum oxide

ABSTRACT: Two methods of separation and determination of rare earth elements were worked out. The first method involved titration with complexon III at different pH of the solution in the presence of different indicators. Here the fact that tetravalent elements such as titanium and zirconium, form complexes in strongly acid solutions (pH = 1), trivalent metals at pH 2 - 3 and alkaline earth elements at pH 10 - 11 was taken into account. The second method involved the use of masking substances such as potassium cyanide, triethanolamine, ammonium fluoride, thyron, 2,3-dimercapto-propanol. The analysis

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POPOVA, O.I.; GODOVANNAYA, I.N.

Complexometric analysis of some binary alloys. Zhur. anal. khim. 20 no.3:355-358 '65. (MIRA 18:5)

1. Institut problem materialovedeniya AN UkrSSR, Kiyev.

SAMSONOV, G.V.; PILIPENKO, A.T., prof., doktor khim. nauk; NAZARCHUK, T.N., kand. khim. nauk; Prinimali uchastiye: POPOVA, O.I., kand. khim. nauk; KOSOLAPOVA, T.Ya.; OBOLONCHIK, V.A.; KOTLYAR, G.Kh., mladshiy nauchnyy sotr.; KUCHAY, L.N.; KOPYLOVA, V.P.; KABANNIK, G.T.; KLIBUS, A.Kh.; MODYLEVSKAYA, K.D.; RADZIKOVSKAYA, S.V.; NIKITINA, Ye.A., red.; KAMAYEVA, O.M., red. izd-va; KARASEV, A.I., tekhn. red.

[Analysis of high-melting compounds] Analiz tugoplavkikh soedinenii. Moskva, Metallurgizdat, 1962. 256 p. (MIRA 15:7)

1. Chlen-korrespondent Akademii nauk USSR (for Samsonov).
(Intermetallic compounds—Analysis)
(Nonmetallic materials—Analysis)

S/081/62/000/019/016/053
B144/B180

AUTHORS: Popova, O. I., Kabannik, G. T.

TITLE: Chemical properties and analysis of certain nitrides

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 19, 1962, 121, abstract 19B111 (Byul. In-t metallokeram. i. spets. splavov AN USSR, no. 6, 1961, 64 - 68)

TEXT: The solubility of Ti, Zr, Nb, Ta, and Cr nitrides was studied in different acids (HCl, H_2SO_4, HNO_3, $HClO_4$, etc.), mixtures thereof, and in alkaline solutions (NaOH, NaOH + H_2O_2, etc.). The nitrides were obtained by nitriding the metals at high temperatures.. TaN and CrN were the most resistant, Cr_2N the least. Nitrogen in the nitrides is determined by the Kjeldal method after dissolving the sample in concentrated H_2SO_4 (ZrN, NbN) in a H_2SO_4 - K_2SO_4 mixture (TiN, TaN, BN, VN), in H_2SO_4 (1 : 4) (Cr_2N, CrN), or in 40% NaOH solution (AlN). CrN and Si_3N_4 are fused with a PbO_2 + $PbCrO_4$

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S/081/62/000/019/012/053
B144/B180

AUTHORS: Samsonov, G. V., Vereykina, L. L., Popova, O. I.

TITLE: Methods of chemical analysis for, titanium - phosphorus and chromium - phosphorus alloys, and a study of their resistance to chemical corrosion

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 19, 1962, 119, abstract 19D103 (Byul. In-t metallokeram. i spets. splavov AN USSR, no. 6, 1961, 75 - 79)

TEXT: The resistance of Cr and Ti monophosphides obtained by passing phosphine over the heated metal powder to chemical corrosion was studied in acid (H_2SO_4, HNO_3, HCl, HF, and mixtures of them) and alkaline (NaOH + H_2O_2, NaOH + bromine water) media and methods of analysis developed. For analyzing Ti monophosphide, the sample (0.1 - 0.15 g) is dissolved in a mixture of 40% HF and concentrated HNO_3 in a Pt dish. The solution is slightly evaporated, 30 ml of 35% tartaric acid solution and a small quantity of solid H_3BO_3 are added and the mixture is diluted to 200 ml. To 10 -25 ml

Card 1/3

Methods of chemical analysis ...

of the solution obtained 10 ml concentrated HNO_3 and 15 mg NH_4NO_3 are added, it is heated to 60°C, P is precipitated by adding 100 ml molybdate solution and it is left for one night. Then it is filtered through a fine filter, the precipitation is thoroughly washed and transferred together with the filter into the NaOH titrant whose excess is backtitrated with phenolphthalein as indicator. The Ti content is determined from a weighed portion separated by precipitation with cupferron from the sulfate solution or titrimetrically after reduction to Ti^{3+}. For the analysis of Cr monophosphide, the sample (0.1 - 0.15 g) is dissolved by heating in a mixture of concentrated H_2SO_4 and HNO_3 or in a mixture of H_2SO_4 and $(NH_4)_2S_2O_8$. The solution is evaporated till evolution of a white fume and after cooling and dilution its Cr content is determined by oxidation to Cr^{6+} with $(NH_4)_2S_2O_8$ (catalyst $AgNO_3$) and titrating Cr^{6+} with 0.1 N Mohr's salt solution (indicator phenyl anthranilic acid). The P content is determined gravimetrically by precipitation with magnesia mixture. In order to determine the free Cr in Cr monophosphide, 0.2 - 0.25 g of the latter is treated by heating with H_2SO_4 (1 : 4) (in this case only the free Cr passes into the solution); the

S/137/62/000/008/059/065
A006/A101

AUTHORS: Popova, O. I., Kabannik, G. T.

TITLE: Chemical properties and analysis of some nitrides

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 8, 1962, 7, abstract 8K44 ("Byul. In-t metallokeram. i spets. splavov AN UkrSSR", 1961, no. 6, 64 - 68)

TEXT: The authors investigated the solubility of Ti, Zr, Nb, Ta and Cr nitrides in various acids, their mixtures and alkaline solutions. It is shown that maximum stability against the effect of different solvents is offered by Ta and Cr nitrides (CrN), and least stability by Zr and Cr nitrides (Cr_2N). Methods of analyzing some nitrides are given. For instance, when analyzing Si nitride, the batch is alloyed with Na_2O_2. The cold melt is lixiviated with water and further analysis is conducted with the use of the hydrochloride method. The determination of free Si is based on its solubility in 1% NaOH solution. The Si nitride is then not dissolved. In the solution obtained the Si content is determined by the colorimetric method from the yellow color of the molybdenum silicic acid.

[Abstracter's note: Complete translation]

L. Vorob'yeva

Card 1/1

PHASE I BOOK EXPLOITATION SOV/5994

Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov. Seminar po zharostoykim materialam.
Kiyev, 1960.

Trudy Seminara po zharostoykim materialam, 19-21 aprelya 1960 g. Byulleten' no. 6: Khimicheskiye svoyatva i metody analiza tugoplavkikh soyedineniy (Transactions of the Seminar on Heat-Resistant Materials of the Institute of Powder Metallurgy and Special Alloys of the Academy of Sciences of the Ukrainian SSR. Held 19-21 April, 1960. Bulletin no. 6: Chemical Properties and Methods of Refractory Compound Analysis). Kiyev, Izd-vo AN UkrSSR, 1961. 124 p. 1500 copies printed.

Sponsoring Agency: Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov.

Editorial Board: I. N. Frantsevich; G. V. Samsonov, Resp. Ed.; I. M. Fedorchenko, V. N. Yeremenko, V. V. Grigor'yeva, and T. N. Nazarchuk; Tech. Ed.: A. A. Matveychuk.

Card 1/5

Transactions of the Seminar (Cont.) SOV/5994

PURPOSE: This collection of articles is intended for chemists, engineers, workers at scientific research institutes and plant laboratories, senior students, and aspirants at chemical and metallurgical schools of higher education.

COVERAGE: Articles of the collection present the results of studies of the chemical properties of refractory compounds (carbides, borides, nitrides, phosphorides, silicides), refractory and rare metals, and their alloys, and some original methods of analyzing these materials, which are now being utilized in the new fields of engineering. No personalities are mentioned. Each article is accompanied by references, mostly Soviet.

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Card 3/5

POPOVA, O. I.

PHASE I BOOK EXPLOITATION SOV/6030

Samsonov, G. V., Corresponding Member, Academy of Sciences UkrSSR; A. T. Pilipenko, Doctor of Chemical Sciences, Professor; T. N. Nazarchuk, Candidate of Chemical Sciences; O. I. Popova, Candidate of Chemical Sciences; and T. Ya. Kosolapova, V. A. Obolonchik, G. Kh. Kotlyar, L. N. Kuchay, V. P. Kopylova, G. T. Kabannik, A. Kh. Klibus, K. D. Modylevskaya, and S. V. Radzikovskaya.

Analiz tugoplavkikh soyedineniy (Analysis of Refractory Compounds) Moscow, Metallurgizdat, 1962. 256 p. 3250 copies printed.

Ed.: Ye. A. Nikitina; Ed. of Publishing House: O. M. Kamayeva; Tech. Ed.: A. I. Karasev.

PURPOSE: This book is intended as a laboratory manual for personnel in plant laboratories of the machinery, chemical, and aircraft industries and scientific research institutes. It can also be used by chemistry students at universities and schools of higher education.

Card 1/4

COVERAGE: The book contains data from the literature and from laboratory research on the chemical and mechanical properties, crystalline structure, chemical analysis, production, and industrial and other applications of silicon carbide and other refractory compounds. Methods of determining the basic components of refractory compounds (carbon, boron, nitrogen, and silicon) are reviewed and detailed methods for the chemical analysis of all presently known refractory compounds given. The authors are associated with the Institut metallokeramiki i spetsial'nykh splavov, AN SSSR (Institute of Powder Metallurgy and Special Alloys, Academy of Sciences USSR). No personalities are mentioned. There are 327 references: 175 Soviet and the remainder mainly English and German.

TABLE OF CONTENTS [Abridged]:

Analysis of Refractory (Cont.) SOV/6030

AVAILABLE: Library of Congress

SUBJECT: Metals and Metallurgy

Card 4/4

BN/pw/bmc
10-30-62

POPOVA, O.I.; KABANNIK, G.T.

Chemical properties and analysis of some nitrides. Biul. Inst. metaloker. i spets. splav. AN URSR no.6:64-68 '61. (MIRA 15:2)

1. Institut metallokeramiki i spetsial'nykh splavov AN USSR.
(Nitrides)

HAZARCHUK, Tamara Nikolayevna; ZOLOVA, Oksana Ivanovna; SAMSONOV, G.V., otv. red.; MOSKALETSKAYA, L.K., red.; FUKS, R.Ya., red.

[Complexometric analysis of ceramic metal and ceramic materials and of certain alloys] Kompleksometricheskii analiz metallokeramicheskikh i keramicheskikh materialov i nekotorykh splavov. Kiev, Naukova dumka, 1965. 120 p. (MIRA 18:9)

1. Chlen-korrespondent AN Ukr.SSR (for Samsonov).

Popova, O. L.

USSR/Microbiology. Antibiosis, and Symbiosis, Antibiotics. F-2

Abs Jour : Ref. Zhur-Biologiya, No 1, 1957, 515

Author : S. F. Gauze, O. L. Popova, G. V. Kochetkova

Inst :

Title : New Method of Selection of the Producer of Albomycin

Orig Pub : Antibiotiki, 1956, 1, No 1, 18-20

Abstract : When a suspension of spores of Actinomyces subtropicus, the producer of albomycin, is subjected to ultra-violet light, in the subsequent selection it was not possible to isolate strains with a greater productivity of albomycin (1) then those isolated from the initial culture. No results were obtained also in the attempt to derive a more active variant by

Card 1/3

USSR/Microbiology. Antibiosis, and Symbiosis, Antibiotics. F-2

Abs Jour : Ref. Zhur-Biologiya, No 1, 1957, 515

Abstract : colony has grown from 1,000, 20,000 and 40,000 spores respectively. Streptomycin resistant variants which freely develop in 150 gamma/ml varied considerably in their morphological and physiological properties. A change in the color of the mycelium was observed in 15 cases out of 200. In a small number of strains of 524 streptomycin resistant forms the formation of l. exceeded by 150 to 200 percent the formation of l. from the initial culture, and this index was maintained by a number of generations.

Card 3/3

Poporova, E. L

A microbiological method for the [illegible]fication of similar antibiotic substances [illegible] L. Porova [illegible] [illegible]parison of [illegible] newly Antibiotiki [illegible] closely allied, obtained antibio[illegible] method. [illegible]mycin was known anti[illegible] with Aureomycin identified with neomycin and [illegible] with Aureomycin. Actinoidin turned out [illegible] new antibiotic, a fact which [illegible] method was confirmed [illegible] identifying newly [illegible] obtained antibio[illegible] D. M. Chern. 7850c).

GAUSE, G.F.; KOCHETKOVA, G.V.; PREOBRAZHENSKAYA, T.P.; KUDRINA, E.S.; SVESHNIKOVA, M.A.; POPOVA, O.I.

The use of actinophages in the search for antiviral antibiotics. J. Hyg. Epidem., Praha 1 no.1:63-69 1957.

1. Institute for Antibiotics Research of the Academy of Medical Sciences of the U.S.S.R., Moscow.

(ACTINOMYCES,
actinophages, in research on antiviral antibiotics)
(ANTIBIOTICS,
antiviral, use of actinophages in research)
(BACTERIOPHAGE,
actinophage in research on antiviral antibiotics)

GAUZE, G.F.; KOCHETKOVA, G.V.; PREOBRAZHENSKAYA, T.P.; KUDRINA, Ye.S.; SVESHNIKOVA, M.A.; POPOVA, O.L.

Study of the inhibiting effect of actinomycetes on actinophages [with summary in English]. Mikrobiologiia 26 no.6:729-735 N-D '57. (MIRA 11:3)

1. Institut po iskaniyu novykh antibiotikov AMN SSSR, Moskva.
(MICROORGANISMS,
actinomycetes, inhib. eff. on actinophages (Rus)

SAMSONOV, G.V.; VEREYKINA, L.L.; POPOVA, O.L.

Study of the chemical stability and methods of chemical analysis of titanium-phosphorous alloys and chromium-phosphorous alloys. Biul.Inst.metaloker. i spets. splav. AN URSR no.6:75-79 '61. (MIRA 15:2)

1. Institut metallokeramiki i spetsial'nykh splavov AN USSR.
(Titanium--phosphorous alloys)(Chromium--phosphorous alloys)

GAUZE, G.F.; MAKSIMOVA, T.S.; POPOVA, O.L.; BRAZHNIKOVA, M.G.; USPENSKAYA, T.A.; ROSSOLIMO, O.K.

Mutomycin, a new antibiotic produced by Actinomyces atroolivaceus. Antibiotiki 4 no.3:20-23 My-Je '59. (MIRA 12:9)

1. Institut po izyskaniyu novykh antibiotikov AMN SSSR.
(ANTIBIOTICS,
mutomycin, prod. by Actinomyces atroolivaceus & pharmacol. (Rus))

KOCHETKOVA, G.V.; POPOVA, O.L.; BOBKOVA, T.S.; TOROPOVA, Ye.G.

Inactivating effect of some new antibiotics produced by Actinomyces on actinophages in vitro and in vivo. Antibiotiki 3 no.5:17-21 S-O '58. (MIRA 12:11)

1. Laboratoriya vydeleniya i kul'tivirovaniya produtsentov (zav. - prof.G.F.Gauze) Instituta po izyskaniyu novykh antibiotikov AMN SSSR.

(BACTERIOPHAGE,
actinophage, inactivation by antibiotics prod. by Actinomyces (R_{us}))
(ACTINOMYCES,
same)
(ANTIBIOTICS,
Actinomyces-prod., inactivation of actinophage (R_{us}))

Popova, O.L.

USSR/Virology - Bacterial Viruses (Phages) E.

Abs Jour : Ref Zhur - Biol., No 19, 1958, 85765

Author : Gause, G.F., Kochetkova, G.V., Preobrazhenskaya, T.P., Kudrina, Ye.S., Sveshnikova, M.A., Popova, O.L.

Inst : -

Title : Studies of the Suppressive Effects of Actinomycetes on Actinophages.

Orig Pub : Mikrobiologiya, 1957, 26, No 6, 729-735

Abstract : Of 9 actinophages isolated from the soil only 2 were distinguished by specificity of action, while the others were polyvalent. Comparative studies of the antiphage and actibacterial activity of 1000 strains of Actinomycetes showed that of 546 strains which suppressed bacterial growth, 331 also suppressed actinophages (under conditions of interaction with a culture), and of 454 strains which did not suppress bacteria, 247 also suppressed actinophages. Of 578 cultures of Actinomucetes with

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antiphage activity, 279 (48%) acted against 1, 147 (21%) acted against 2, 85 (15%) acted against 3, 40 (7%) acted against 4, 21 (4%) acted against 5, and 6 (1.9%) acted against 6 different phages. -- Ya.I. Rautenshteyn

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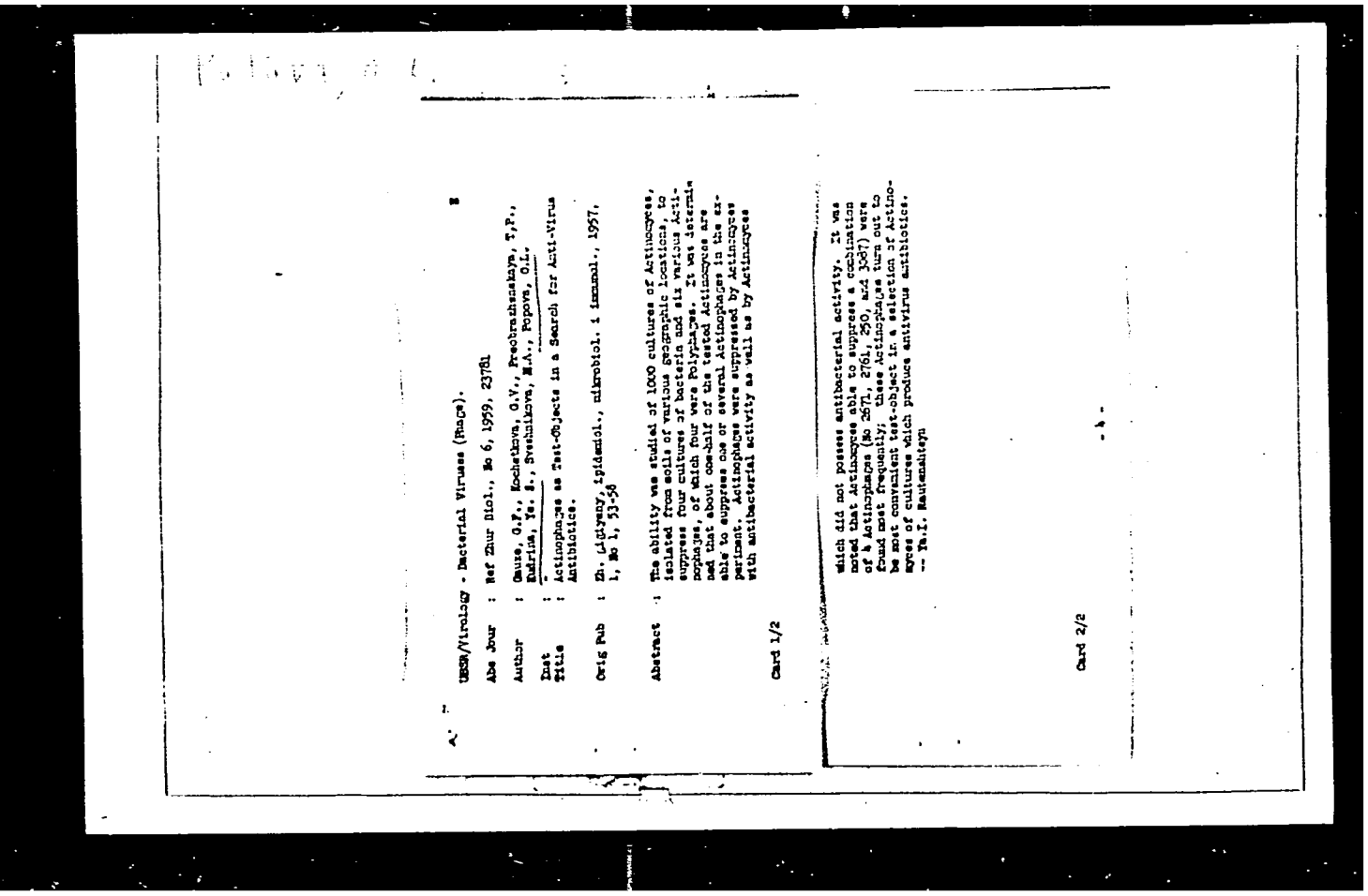

USSR/Virology - Bacterial Viruses (Phage).

Abs Jour : Ref Zhur Biol., No 6, 1959, 23781

Author : Gause, G.F., Kochetkova, O.V., Preobrazhenskaya, T.P., Bukrina, Ye. S., Svetnikova, M.A., Popova, O.E.

Inst :

Title : Actinophages as Test-Objects in a Search for Anti-Virus Antibiotics.

Orig Pub : Zh. mikrobiol., epidemiol. i immunol., 1957, 1, No 1, 53-58

Abstract : The ability was studied of 1000 cultures of Actinomyces, isolated from soils of various geographic locations, to suppress four cultures of bacteria and six various Actinophages, of which four were Polyphages. It was determined that about one-half of the tested Actinomyces are able to suppress one or several Actinophages in the experiment. Actinophages were suppressed by Actinomyces with antibacterial activity as well as by Actinomyces which did not posses antibacterial activity. It was noted that Actinomyces able to suppress a combination of 4 Actinophages (No 2671, 2761, 250, and 3087) were found most frequently; these Actinophages turn out to be most convenient test-object in a selection of Actinomyces of cultures which produce antivirus antibiotics. -- T.I. Rautenshteyn

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CHERVONSKIY, V.L.; POPOVA, O.M.

Antigen for the Miyagawanella complement fixation reaction. Vop. virus 4 no.1:68-71 Ja-F '59. (MIRA 12:4)

1. Institut virusologii AMN SSSR, Moskva.
(ORNITHOSIS, immunol.
complement fixation, antigen (Rus))
(COMPLEMENT FIXATION
fixation reaction in ornithosis, antigen (Rus))

TERSKIKH, I.I.; POPOVA, O.M.

Emergency prophylaxis for ornithosis by means of dibiomycin; development of a scheme for its use. Vop.virus. 7 no.6:712-715 N-D '62. (MIRA 16:4)

1. Institut virusologii imeni D.I.Ivanovskogo AMN SSSR, Moskva.
(ORNITHOSIS) (DIBIOMYCIN)

ACC NR: AP6021515 (V) SOURCE CODE: UR/0432/66/000/003/0375/0375

AUTHOR: Nikolov, Z. V.; Popova, O. M.

ORG: Department of Epidemiology, Institute for Specialization and Postgraduate Training of Physicians (Kafedra epidemiologii Instituta spetsialzatsii i usovershenstvovaniya vrachey, Sofia); Virology Institute, Academy of Medical Sciences, SSSR (Institut virusologii im. D. I. Ivanovskogo AMN SSSR)

TITLE: Effect of chemical disinfectants on ornithosis virus

SOURCE: Voprosy virusologii, no. 3, 1966, 375

TOPIC TAGS: disinfectant, virology, ornithosis, ornithosis virus, VIRUS

ABSTRACT:
The following disinfectants destroy ornithosis viruses and are recommended for use at sites of infection: a 5—10% solution of iodine chloride will inactivate all viruses in 1 hr; 3—5% hydrogen peroxide does the same in 3 hr; 0.1—0.2% dichlorohydantoin inactivates viruses in 1 hr, and a 0.5% solution of benzylchlorophenol requires 3 hr.

[W.A. 50; CBE No. 10]

SUB CODE: 06/ SUBM DATE: none/

Card 1/1

POPOVA, O.M.; BEREZINA, O.N.

Effect of previous X-ray irradiation on the [illegible] mice to infection by ornithosis virus aerosol. Vop. virus. [illegible] 216 Mr-Ap '64. [illegible]

1. Institut virusologii imeni Ivanovskogo AMN SSSR, Moskva.

VAVILOV, P.P.; VERKHOVSKAYA, I.N.; KODANEVA, R.P.; POPOVA, O.N.

Growth and development of Vicia faba L. under the conditions of increased content of U and Ra. Radiobiologiia 3 no.1:132-138 '63. (MIRA 16:2)

1. Laboratoriya radiobiologii Komi filiala AN SSSR, Syktyvkar.
(BROAD BEAN) (PLANTS, EFFECT OF URANIUM ON)
(PLANTS, EFFECT OF RADIUM ON)

L 30097-66 EWT(m)
ACC NR: AP6012875 SOURCE CODE: UR/0205/66/006/002/0278/0283

49
B

AUTHOR: Vavilov, P. P.; Verkhovskaya, I. N.; Popova, O. N.; Kodaneva, R. P.

ORG: Komi Branch, AN SSSR, Syktyvkar (Komi filial AN SSSR); Institute of Biochemistry im. A. N. Bakh, AN SSSR, Moscow (Institut biokhimii AN SSSR)

TITLE: The depressant effect of small doses of ionizing radiation on growing plants

SOURCE: Radiobiologiya, v. 6, no. 2, 1966, 278-283

TOPIC TAGS: ionizing radiation, radiation plant effect, plant physiology, plant growth, gamma irradiation

ABSTRACT: In view of previous findings that the growth of Vicia faba is significantly delayed in areas with large deposits of uranium or radium, similar experiments were carried out over a 2-year period with spring wheat and spring barley grown in experimental plots under the influence of gamma radiation from U and Ra ore (radiation dose of 0.005 — 0.1 r/day). The height, internodes, dry weight, number of heads, and number of grains per head were measured in both experimental and control plots. Although radiation had no

Card 1/2 UDC: 58.039.1

Card 2/2 CC

S/205/63/003/001/026/029
E065/E485

AUTHORS: Vavilov, P.P., Verkhovskaya, I.N., Kondaneva, R.P., Popova, O.N.

TITLE: The growth and development of Vicia faba L. under conditions of increased U and Ra content

PERIODICAL: Radiobiologiya, v.3, no.1, 1963, 132-138

TEXT: To elucidate the relative importance of chemical and radiation effects of radioactive substances on plants, bean seedlings were grown in pots containing soil to which U (concentration 4 x 10^{-7}%) and Ra (1.06 x 10^{-7}%) had been added, while control plants were grown in pots containing normal turf soil; control and treated pots were placed in one of two trenches, one having normal background radioactivity (0.00004 r/hour) and the other with a radiation level of 0.002 r/hour, derived from U (10^{-2} %) and Ra (10^{-7}%) sources in the walls. Observations were made for several weeks on the growth and development of plants kept under the four different environments. The results showed that the U and Ra had an injurious effect on growth, retarding the upward growth of the stem and the formation of new leaves,

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The growth and development ...

reducing the general productivity (including fruit yield) and accelerating the processes of ageing. It was clearly shown that these effects were exerted when the U and Ra were not present in the soil and thus had no direct contact with the plants, indicating that their effects on growth are primarily associated with their radiation emissions rather than chemical properties. Analysis of plants grown on the supplemented soil indicated that Ra had been absorbed into the roots, leaves, stems and fruits, proving a source of chronic internal radiation. There was, however, evidence that chemical factors, particularly in the case of U, also influenced growth adversely in a distinctive manner. Reasons for the effects on growth of the very minute radiation doses applied in the investigation are discussed: the results are thought to indicate the need for a revision of the threshold doses currently accepted for higher plants. There are 2 figures and 3 tables.

ASSOCIATION: Laboratoriya radiobiologii Komi filiala AN SSSR, Syktyvkar (Radiobiology Laboratory, Komi Branch AS USSR, Syktyvkar)

Card 2/2 SUBMITTED: May 7, 1962

POPOVA, O. N.

Gol'dberg, D. O., Sanamova, R. A., and Popova, O. N. "Deparaffination of (Surakhanskogo) residual oil in the presence of admixtures," Azerbaydzh. neft. khoz-vo, 1948, No. 11, p. 18-19

SO: U-3264, 10 April 53 (Letopis 'Zhurnal 'nykh Statey, No. 4, 1949).

Popova, O. N.

Effect of phosphate nutrition of tomatoes on the quality of the seed. A. A. Anismov and O. N. Popova (*Agrobiologiya*, 1954, No. 5, 110—111).—Application of small amounts of P fertiliser (5 g. per 2 sq. m. of frame) improved seed quality. Seed from treated plants produced larger plants, earlier yields and fruit having higher sugar and vitamin C and lower acid contents. HORT. ABSTR. (A. G. P.).

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VAVILOV, P.P.; POPOVA, O.N.; KODANEVA, R.F.

Radium behavior in plants. Dokl. AN SSSR 157 no.4:992-994 Ag '64 (MIRA 17:8)

1. Institut biologii Komi filiala AN SSSR. Predstavleno akademikom N.M. Sisakyanom.

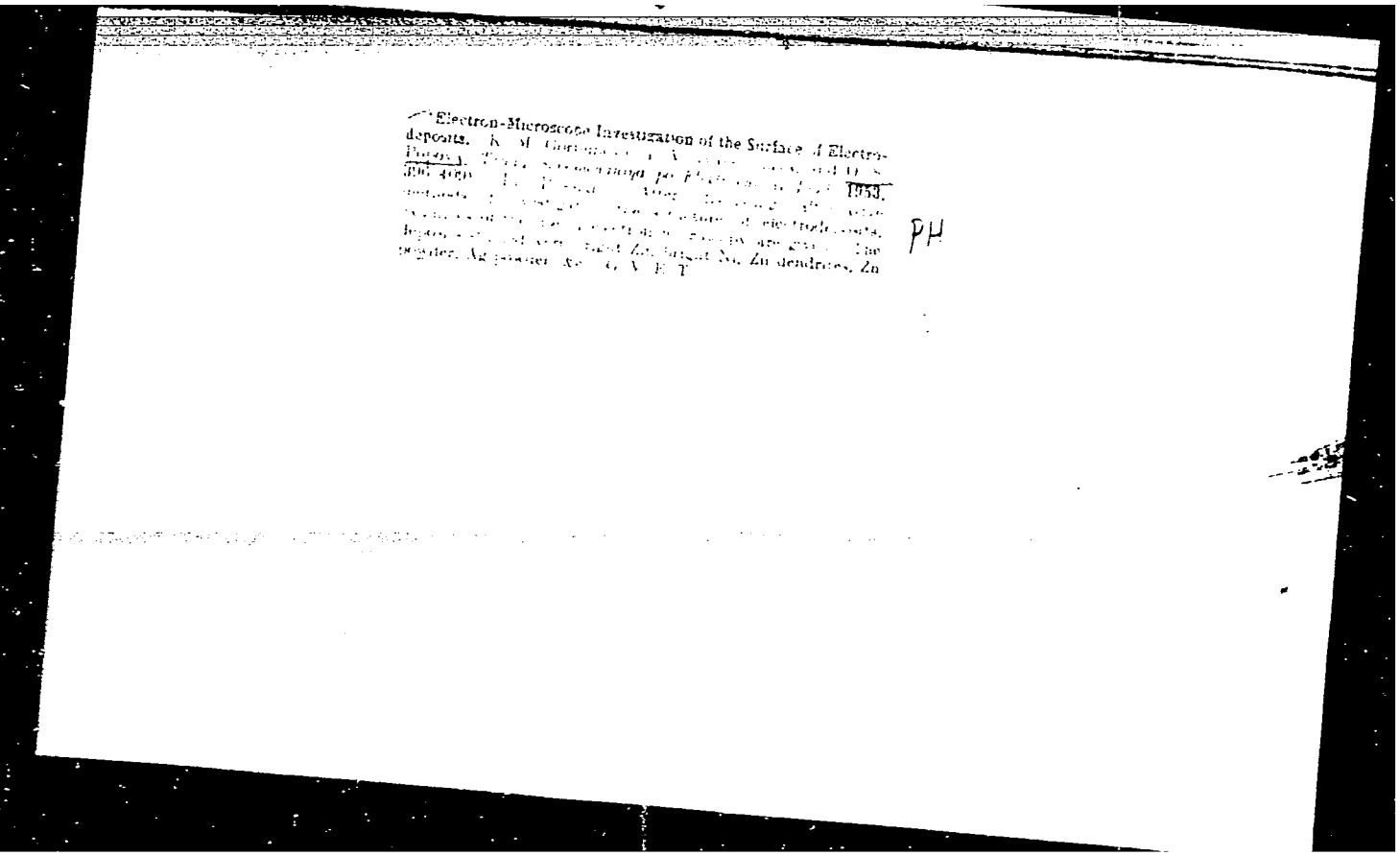
DEGTYAROVA, A.S.[Dehtiar'ova, A.S.], kand. biol. nauk; PERESIPKIN, V.F.[Peresypkin, V.F.], doktor biol. nauk, prof.; BURKATSKAYA, O.M.[Burkats'ka, O.M.], kand. med. nauk; SPINU, IE.I., kand. med. nauk; KOGAN, Yu.S.[Kohan, IU.S.], kand. med.nauk; MEYSAKHOVICH, Ya.O.[Meisakhovych, IA.O.], kand. tekhn. nauk; SANIN, V.A., kand. sel'khoz. nauk; TARANUKHA, M.D., kand. biol. nauk; ZAGOVORA, O.V. [Zahovora, O.V.], kand. sel'khoz. nauk; ARESHNIKOV, B.A. [Areshnykov, B.A., kand. biol. nauk; SALUNSKAYA, N.I. [Saluns'ka, N.I.], kand. biol. nauk; KOLOBOVA, A.M., kand. sel'khoz. nauk; KITITSYN, IE.M.[Kitytsyn, IE.M.], kand. sel'khoz. nauk; TELENGA, M.A.[Telenha, M.A.], doktor biol. nauk, prof.; POPOVA, O.O., kand. sel'khoz. nauk; MISKO, L.A.; ZRAZHEVSKIY, A.I.[Zrazhevs'kyi, A.I.], kand. sel'khoz. nauk; DYADECHKO, M.P., kand. sel'khoz. nauk; LOPATIN, V.M., kand. biol. nauk; MARKHASEVA, V.A.[Markhas'ova, V.A.], kand. sel'-khoz. nauk: FEDOTOVA, K.M., kand. sel'khoz. nauk; TSELLE, M.O., kand. biol. nauk; VASIL'YEV, V.P.[Vasil'iev, V.P.], doktor biol. nauk, prof.; SHISHKOVA, M.I.[Shyshkova, M.I.], kand. sel'khoz. nauk; MARICHEK, Yu.Y.[Marychek, IU.I.], kand. sel'khoz. nauk; SHTERENBERG, P.M.[Shterenberh, P.M.], kand. sel'khoz. nauk; DMITRIYEV, Yu.V., kand. biol. nauk; LOZINSKIY, V.A.[Lozyns'kyi, V.A.], kand. biol. nauk; BRATUS', V.M., kand. sel'khoz. nauk; SOKUR, I.T., doktor biol. nauk; BOLOTIN, K.M.; SAVCHENKO, IE.M., red.; NEMCHENKO, I.IU., tekhn. red.

(Continued on next card)

POPOVA, O. P., SELEGEY, M. V., TUROVSKAYA, F. M., ANIKEYENKO, G. N., GORYASHCHENKO, I. K., NUSBAUM, D. G., STEPANOVA, Z. F., LASOVA, O. I., GALAKTIONOVA, N. S., GEKKER, V. [illegible], DENISEVA, G. [illegible], YEVDOKIMOVA, Y[illegible]., I., ZAKHAR'INA, [illegible]. A., KORCHNAYA, R. A., LEVINA, I. V., MISHCHENKO, E. B.,

"Hygienic characteristics of the day regimen of Moscow school children."

report submitted at the 13th All-Union Congress of Hygienists, Epidemiologists and Infectionists, 1959.



Electron-Microscope Investigation of the Surface of Electro-deposits. [illegible] 1953.

PH

Popova, O. S.

5

Mechanism of growth and the structure of metal precipitates formed during the electrocrystallization process. K. M. Gorbunova, O. S. Popova, A. A. Sutyagina, and Yu. M. Polukarov. *Rost Kristallov, Akad. Nauk S.S.S.R., Inst. Krist., Doklady Soveshchaniya*, 1956, 68–80(Pub. 1957).—A discussion with 16 references. A. P. K.

04

~~POPOVA, O.S.~~ POPOVA, O.S.

X-ray investigation of remanent stresses in electrolytic nickel deposits. V. P. Moiseev and O. S. Popova. *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 20, 641-6(1956).—Mat deposits, 20 μ thick, were obtained from a bath contg. 140 g./l. $NiSO_4.7H_2O$, 30 g./l. H_3BO_3, 3 g./l. NaCl, 5 g./l. NaF, and bright deposits were obtained upon further addn. of 4 g./l. 2,6- or 2,7-naphthalene disulfonic acid at a c.d. of 1 amp./sq. dm. In bright deposits the initial strains are compression strains going over into tension strains. In mat deposits the original strains are tension strains which subside with increasing thickness. In bright Ni there are 8.3 vols. of absorbed H per vol. Ni, in mat deposits only 2.2 vols./vol. The tensions are relieved by heating to 500-600° with simultaneous release of H. An irregularly distributed interstitial soln. of H is postulated. S. Pakswer

Chem 2

POPOVA, O.S.

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18

/ *Internal Stresses in Electrodeposits. I. Stresses in Zinc Deposits. K. M. [illegible]va and O. S. Popova (*Zhur Fiz Khim.*, 1955, 30 (2), 324) [In Russian] After a bibliographical survey of the causes of stress formation and the influence of the surface tension and the ductility of the metal, O. and P. describe the results of an investigation of the formation and nature of stresses in Zn deposits obtained from $ZnSO_4$ soln. with and without addn. agents. The stress increases with increase of c.d., and at a given c.d. decreases with increase in thickness of the deposit in cases of simple $ZnSO_4$ soln., but on addn. of dextrine this decrease is small, probably because of the *d* of the deposit and the presence of twinning. Crystallographic investigations of the deposits revealed the influence of the nature of the electrolyte on the directional properties of the crystal structure. The method of investigation was similar to that adopted by Samartsev (cf. *ibid.*, 1955, 29, 374; *M.A.*, 24, 732). 10 ref.—A. W.

L 05868-67 EWT(m)

ACC NR: AP6029973 SOURCE CODE: UR/0413/66/000/015/0166/0166

INVENTOR: Satalkin, A. V.; Popova, O. S.; Sokolovskiy, V. T.; Solntseva, V. A.

ORG: none

TITLE: Method of preparing water-resistant concrete or solutions. Class 80, No. 184691 /announced by Leningrad Order of Lenin Institute of Railroad-Transportation Engineers im. Academician V. N. Obraztsov (Leningradskiy instituta inzhenerov zheleznodorozhnogo transporta)/

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 166

TOPIC TAGS: concrete, cement, material deformation, wear resistance

ABSTRACT: An Author Certificate has been issued for a method of preparing water-resistant concrete or solutions by mixing together cement, fillers, and water containing polymeric additives. Better water resistance and product deformation result when 1.5--2.5% by weight of polymeric additives, consisting of water-soluble epoxy resins (diethylene glycol or triethylene glycol) and a polyethylenepolyamine hardener, are introduced into the cement. /SA/

SUB CODE: 11, 07/ SUBM CODE: 25May64

KH

Card 1/1 UDC: 666.972.522:666.972.16

L 13084-66 EWT(m)/EWP(j) WW/RM

ACC NR: AP6005406 (A) SOURCE CODE: UR/0101/66/000/001/0014/0015

AUTHOR: Satalkin, A. V. (Doctor of technical sciences); Solntseva, V. A. (Candidate of chemical sciences); Popova, O. S. (Engineer)

ORG: Leningrad Institute of Rail Transport Engineers (Leningradskiy institut inzhenerov zheleznodorozhnogo transporta)

TITLE: Cement with increased extensibility

SOURCE: Tsement, no. 1, 1966, 14-15

TOPIC TAGS: concrete, cement, reinforced concrete, synthetic resin additive, mechanical property

ABSTRACT: A study has been made of the effect of synthetic resin additives on mechanical characteristics of portland cement and concrete to produce concrete of increased extensibility, suitable for road pavement, airfield runways surfacing etc. Comparative mechanical tests of fine grained concretes with new water-soluble additives, such as TEG-17 and DEG-15 epoxy resins and 89 resin, and with previously used additives, indicated a substantial increase in tensile and compressive strength and water resistance, and a 4—5-fold increase in extensibility of the portland cement with new water-soluble polymer additives. The highest tensile and compressive strength was determined in concretes with 2% additions of 89 and TEG-17 resins in aqueous medium. The high early strength increased further with increasing time of set under all setting

Card 1/2 UDC: 666.958

L 13884-66

ACC NR: AP6005406

3

conditions. The highest specific extensibility was also achieved with 89 resin. Deformability on compression and creep limit did not increase by addition of the water-soluble resins. The combination of increased extensibility with an increase in tensile strength of concrete may lead to an increase in crack resistance of concrete, i.e., in reliability and durability of concrete and reinforced concrete structures. Orig. art. has: 4 figures and 2 tables. [JK]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 004/ ATD PRESS: 4193

Card 2/2

L 9432-66 EWT(m)/EWP(j) RM

ACC NR: AP5025439 SOURCE CODE: UR/0097/65/000/009/0029/0031

AUTHORS: Satalkin, A. V. (Doctor of technical sciences, Professor); Popova, O. S. (Engineer)

ORG: none

TITLE: Strength and deformability of finely grained concretes with polymer additives

SOURCE: Beton i zhelezobeton, no. 9, 1965, 29-31

TOPIC TAGS: resin, construction material, polyvinyl acetate, plastic compound, polymer, concrete/ SKS 65GP latex, S 89 resin, DEG 1 resin, TEG 17 resin

ABSTRACT: The results of a study of the effect produced by polymer additives on the physico-mechanical and deformability properties of fine-grained concretes are presented. The following polymers were used in the tests: a polyvinyl acetate-water dispersion stabilized with formalin, divinyl styrol latex SKS-65GP, stabilized with nonionogenic soaps of type OP-7 and water-soluble resins S-89, DEG-1 and TEG-17. Stiff and plastic mixes were tested. The stiff mixes (105--110 mm slump on lab table vibrating at 2750 oscillations per minute for

UDC: 620.17:666.97:691.175

Card 1/3

ACC NR: AP5025439

20--30 seconds) were found significantly superior. Figure 1 shows a plot of the

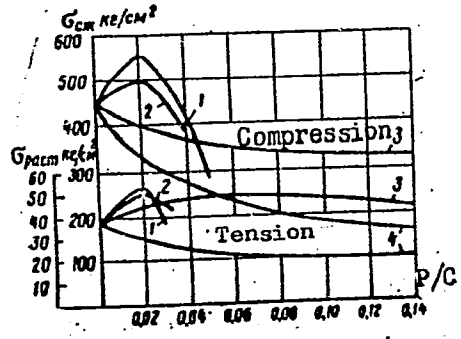

Fig. 1. Variation of compressive and tensile strength limits with the P/C (polymer-cement) ratio for a 28-day duration. 1 - resin 89 additive; 2 - resin TEG-17 additive; 3 - latex SKS-65GP additive; 4 - polyvinyl acetate additive stabilized in formalin.

relationship of the compressive and tensile strength limits at varying polymer-cement ratios. It is noted that the strength limits are larger for specimens having water-soluble resin additives. An optimal quantity of a polymer additive is defined as that quantity which increases both the compressive and tensile strength limits. A relationship was found for the variation of compressive and tensile strength with duration of specimen immersion in water. The experiments

L 9432-66
ACC NR: AP5025439 O

indicated a beneficial effect of the polymer additives on concrete hydration. The polymer-bearing mixes were tested for creep and deformation characteristics and were compared with the same characteristics as exhibited by indicated mixes. The results of the experimental measurements are tabulated. The resin additives DEG-1, TEG-17 and S-89 yielded favorable properties of mixability and strength without appreciably lowering the compressive deformation characteristics. Orig. art. has: 4 tables and 5 figures.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 002

Card 3/3

S/564/57/000/000/003/029
D258/D307

AUTHORS: Gorbunova, K. M., Popova, O. S., Sutyagina, A. A., and Polukarov, Yu. M.

TITLE: Mechanism of growth and structure of metallic deposits formed during electrocrystallization

SOURCE: Rost kristallov; doklady na Pervom soveshchanii po rostu kristallov, 1956 g. Moscow, Izd-vo AN SSSR, 1957, 58-66

TEXT: The present article is a review of some of the authors' earlier studies and other work; attention is focused on some regularities concerning the cathode deposition of metals, as dense or porous, dendritic, coatings. An increase in the electrolysis current leads to an increase in the surface of the crystallizing metal, leading to an increase in the number of crystals or to dendritization, according to conditions. Powder deposition (fine dendrites) occurs at the saturation current.

Card 1/2

S/564/57/000/000/003/029
D256/D307

Mechanism of growth...

Properties of such polydendritic and of dense galvanic coatings are indicated, and conditions leading to the formation of electrolytic deposits with a predetermined crystal orientation are discussed with particular reference to the earlier work of Gorbunova. It is believed that orientation may be ascribed to the unequal rates of growth of variously oriented crystals. Possible mechanisms for the formation of texture on coatings are indicated. An account is also given of the authors' earlier study of internal stresses in galvanic coatings, particularly in the presence of surface-active compounds, and of the conditions leading to coatings possessing difference surfaces. There are 6 figures and 16 references: 12 Soviet-bloc and 4 non-Soviet-bloc.

Card 2/2

SANZHAROVSKIY, A.T.; POPOVA, O.S. (Moscow)

Study of internal stresses arising in cathodic hydrogen absorption by metals. Zhur.fiz.khim. 35 no.11:2646-2648 N '61. (MIRA 14:12)

1. Akademiya nauk SSSR, Institut fizicheskoy khimii.
(Metals—Hydrogen content)

POPOVA, O.S.; SANZHAROVSKIY, A.T.

Some data on the effect of cathodically reduced hydrogen on the properties of iron and nickel. Zhur.prikl.khim. 34 no.9: 2117-2120 S '61. (MIRA 14:9)

1. Institut fizicheskoy khimii AN SSSR.
(Iron) (Nickel) (Hydrogen)

SANZHAROVSKIY, A.T.; POPOVA, O.S.

Some data on the effect of cathodically reduced hydrogen on the properties of electrodeposited nickel. Zhur.prikl.khim. 34 no.9:2120-2123 S '61. (MIRA 14:9)

1. Institut fizicheskoy khimii AN SSSR.
(Nickel plating) (Hydrogen)

MOISEYEV, V.P.; POPOVA, O.S.

X-ray investigation of phase transformations in the electrolytic precipitates of manganese. Fiz. met. i metalloved. 9 no. 4:584-588 Ap '60. (MIRA 14:5)

1. Institut fizicheskoy khimii AN SSSR.
(Manganese—Metallography) (Electrolysis)

27348
S/080/61/034/009/014/016
D204/D305

18.7530

AUTHORS: Popova, O.S., and Sanzharovskiy, A.T.

TITLE: Certain data on studying the effect of cathodically reduced hydrogen on the properties of iron and nickel

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 9, 1961, 2117 - 2120

TEXT: Communication II of a series of investigations into the effect of cathodically reduced hydrogen on the properties of metals. A study has been made on the effect of hydrogen on electrolytically-produced bi-metal foils (of iron and nickel). If the iron-nickel diaphragm is hydrogenated, then the coating (Ni) has practically no effect on the diffusion of the hydrogen. If, however, hydrogenation takes place on the nickel side then the diffusion time is considerably extended. Freyman and Titov's method was used to determine the quantity of hydrogen passing through a metal layer polarized on one side. Kinetics of hydrogenation and determination

Card 1/5

Certain data on studying ...

of the internal stresses set up by the hydrogen were studied by the flexible cathode method. Having assumed that the depth of penetration of hydrogen and stresses due to it do not depend on the thickness of the foil, then the magnitude of the bend of hydrogenated foil will be inversely proportional to its toughness. From two experiments using foils of different thickness the depth of penetration of hydrogen was calculated and the stresses set up could be calculated from the equation:

$$\sigma = \frac{Et^3h}{3l^2(xt - x^2)} \qquad (4)$$

where σ - stress, E - modulus of elasticity, l - length of the foil h - declination of the lower end of the bend of the cathode. The hydrogen occluded in the metal was determined by pumping out in a vacuum. Foils saturated with hydrogen were prepared by cathode polarization in a 10 % H_2SO_4 solution with 0.1 g/l. Na_2SO_4 added at a current density of 100 mA/cm^2 and temperature 20-30°. Fig. 1

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Certain data on studying ...

(curve 1) shows that hydrogen penetrates practically instantaneously through the foil and the rate of diffusion remains constant. On switching off the polarizing current, hydrogen continues to be evolved from the foil, giving evidence of the large amount of hydrogen dispersed in the metal. After passing hydrogen through the iron foil for 30-40 minutes blisters and cracks were discovered, these surface effects being largely of a local character. Hydrogenation causes reduced strength - from 50 to 40 kg/cm^2. X-ray examination showed no changes in the metal lattice. As for nickel (Fig. 1, curve 2), after switching off the polarizing current, the system returns to its original condition. Fig. 4 indicates the kinetics of a nickel foil when cathodically polarized. Analysis of the curve shows that change of volume of the system is not connected with penetration of hydrogen, but with the bend which occurs on switching off the polarizing current and with the escape of hydrogen from the metal. Directly after the experiment the nickel was found to be brittle, but on pumping out the hydrogen, the brittleness disappears and the breaking strain is raised from 34 to 38

Card 3/5

Certain data on studying ...

kg/cm^2. When hydrogen passes through the whole thickness of [illegible] foil (100-500 μ) there are no significant changes in the lattice. Occlusion of hydrogen in iron causes internal stresses and local destruction and irreversible lowering of strength. When nickel is cathodically polarized, hydrogen penetrates to a depth of the order 20-25 μ creating internal stresses of 10 kg/mm^2. Hydrogen diffusion brings about a break-up of grain blocs and brittleness. The stresses are removed after 1-1.5 hours and the brittleness after 60-70 hours from the time of switching off the polarized current. Hydrogen is automatically evolved as the internal stress is removed. After all the hydrogen has escaped, the strength is somewhat higher than the original, which seems to be conditioned by the dispersion of the grains. There are 5 figures, and 6 references: 5 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: B. Baranovskiy, and M. Smelovskiy, The Physics and Chemistry of Solids, 12, 2, 1960.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR (Institute of Physical Chemistry AS USSR)

SUBMITTED: June 23, 1960

Card 4/5

27349

18.7530 1416 1413 1418

S/080/61/034/009/010/016
D204/D305

AUTHORS: Sanzharovskiy, A.T., and Popova, O.S.

TITLE: Some data on studying the effect of cathodically reduced hydrogen on the properties of electrolytic nickel

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 9, 1961, 2120 - 2123

TEXT: This is communication II of a series of investigations into the effect of cathodically reduced hydrogen on the properties of metals. Hydrogen diffusion through an electrolytically produced nickel diaphragm is a difficult subject to study because the metal so readily becomes embrittled, so experiments were made by the flexing cathode method, using two-layer samples (the nickel deposits were cemented to rolled nickel sheet or foil with cement BF-2 (BF-2)). A relationship was obtained between the bend of the foil h and time τ. The curve has 3 sections -- section 0-1, intensive hydrogenation of the deposit accompanied by increase of internal

Card 1/4

Some data on studying the ...

stress; cracks appear in the deposit at point 1 and cause the stress to fall off. At point 2 the polarization current was switched off and section 2-3 indicates release of hydrogen from the metal and relief of internal stress, which, experiments showed, was entirely removed. This indicates that there is no deformation of the metal, but after the stresses have been removed the deposits are still very brittle, their toughness is around zero. However, holding these deposits at room conditions for 60-70 hours causes the brittleness entirely to disappear and the breaking strain is even higher than the original (109 kg/mm^2 as compared with 88-90 kg/mm^2 for bright deposits, and 40 kg/mm^2 as compared with 34 kg/mm^2 for matt deposits). Hydrogen occluded by the deposits was found to be 0.02 cm^3/gm., and this is only removed by heating to 100^0. X-ray tests showed that the lines are more intense after hydrogenation than before, which may be due either to disruption of the grains and increased dispersion or to microdistortions of the structure. An attempt was made at determining the value of internal stress causing cracking, and for this two-layer foils were used.

Card 2/4

Some data on studying the ...

consisting of deposit thickness 10, 20, 30 μ cemented to nickel foil thickness 100 μ. To calculate the value of the internal stresses the formula used was:

$$\sigma = \frac{E(t + \Delta th)}{3l \cdot \Delta t}$$

where h - declination of lower end of foil, E - modulus of elasticity of the sub-layer, Δt, t - thickness of sublayer and layer respectively, l - working length of the cover (deposit). Calculations showed that bright deposits of thickness 10 μ crack at stress 5.3 kg/mm^2; 20 μ at 10 kg/mm^2; and 30 μ at 12 kg/mm^2. The figures for matt deposits are somewhat smaller. The mechanism of the processes taking place may be thus briefly explained: the hydrogen diffusing through the thickness of the metal is dispersed in the cavity defects of the structure and creates a pressure of the order of 10 kg/mm^2; another part of the hydrogen is adsorbed on the surface of these defects and lowers their surface energy; when the strength of the metal will have been reduced to the level of the

Card 3/4

Some data on studying the ...

internal stresses produced then the metal begins to break into pieces. Running the polarizing current for 40-60 minutes and then switching off causes complete removal of internal stress, although the deposit still remains brittle due to the effect of the adsorbed hydrogen. The brittleness can be removed by allowing the hydrogen to pass out of its own accord over a period of 60-70 hours or by placing the metal in a vacuum without heat for 15-20 minutes. The conclusion drawn from Communications I and II is that the interaction of iron and hydrogen is analogous to that of nickel and hydrogen, but whereas there is local destruction of iron and its strength remains considerable, the adsorption effect of hydrogen on nickel is much less than on iron. There are 5 figures and 3 Soviet-bloc references.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR (Institute of Physical Chemistry, AS USSR)

SUBMITTED: June 23, 1960

Card 4/4

POPOVA, O.S.; SAKZHAROVSKIY, A.T.

Effect of cathode-reduced hydrogen on the properties of metals. Dokl. AN SSSR 136 no. 2:654-656 Ja '61. (MIRA 14:2)

1. Institut fizicheskoy khimii AN SSSR. Predstavleno akademikom P.A. Rebinderom.

(Hydrogen) (Metals—Hydrogen content)

SANZHAROVSKIY, A.T.; POPOVA, O.S.

Method for determining the diffusion of cathode-reduced hydrogen through metals. Zhur. fiz. khim. 34 no. 11:2601-2602 N '60. (MIRA 14:1)

1. Akademiya nauk SSST, Institut fizicheskoy khimii.
(Hydrogen) (Diffusion)

89735

18.8200

S/020/61/136/003/023/027
B004/B056

AUTHORS: Popova, O. S. and Sanzharovskiy, A. T.

TITLE: Effect of Cathode-reduced Hydrogen on the Properties of Metals

PERIODICAL: Doklady Akademii nauk SSSR, 1961, Vol. 136, No. 3, pp. 654-656

TEXT: The effect of cathode-reduced hydrogen upon the mechanical properties of metals is studied. For this purpose, the effect produced by cathodic polarization upon rolled iron, rolled nickel and electrodeposited nickel is studied. The cathodic polarization was carried out in a 10% sulfuric acid with an addition of 0.1 g/l Na_2S, current density 100 ma/cm^2, temperature 20 - 25°C. The following measurements were made: 1) Measurement of the diffusion of H_2 into the metal; 2) Measurement of the deformation of unilaterally polarized lamellas due to H_2 adsorption; 3) Determination of the adsorbed H_2 by means of extraction in vacuum; 4) X-ray analysis; 5) Determination of the strength before and after cathodic polarization.

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Effect of Cathode-reduced Hydrogen on the Properties of Metals

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B004/B056

The following results are enumerated. A) Rolled nickel: Hydrogen diffuses only to a depth of 30μ; causing internal stress of the magnitude of 10 kg/mm^2. Brittleness occurs, and strength is decreased. This brittleness disappears after 60 - 70 hours of keeping the specimen in air. During this time the entire occluded hydrogen is eliminated. The strength increases as compared to the initial value by 5-6%. B) Electrodeposited nickel: Hydrogen diffuses deeper into the metal than in the case of rolled nickel, and in polished surfaces more quickly than in dim ones. Apart from the fact that in electrodeposited nickel cracks easily occur due to occluded hydrogen, the behavior is analogous to A). C) Rolled iron: Hydrogen penetrates very deep into the metal. Internal stress of about 15 kg/mm^2, increased brittleness, and local destruction occur. The major quantity of occluded hydrogen is eliminated completely only after 6 - 7 days, the strength, however, remains irreversible (15-20%), and flexibility is reduced by 50%. A change in the lattice parameters was, however, not observed. The following conclusions are drawn: The H_2 penetrated into the metal collected in the microcavities of structural defects and thereby causes internal stress. Part of the H_2 is adsorbed on the surface of the

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Effect of Cathode-reduced Hydrogen on the Properties of Metals

S/020/61/136/003/023/027
B004/B056

defects, reduces the surface energy and thus also the strength of the metal. While in the diffusion of H_2 into Ni the effect of the adsorptive reduction of strength predominates, in the diffusion of H_2 into Fe that of the effect of the internal stress predominates. Experiments showed that accelerated extraction of hydrogen in the vacuum also eliminated brittleness. This proves the connection between brittleness and hydrogen content. There are 4 figures and 5 references: 4 Soviet and 1 Polish.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences USSR)

PRESENTED: July 26, 1960, by P. A. Rebinder, Academician

SUBMITTED: July 14, 1960

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